

CITY OF LINCOLN
AD HOC WATER RATE COMMITTEE
MEETING #5 – AGENDA
Monday, May 1, 2017, 3:30 PM
City Hall – First Floor Meeting Room

- I. Capacity Needs and Infrastructure Challenges
- II. Potential Rate Structure Options
- III. Potential Peak Day Additional Capacity Charge
- IV. Cost of Service
- V. Schedule Next Committee Meeting

City of Lincoln Water Rate Study

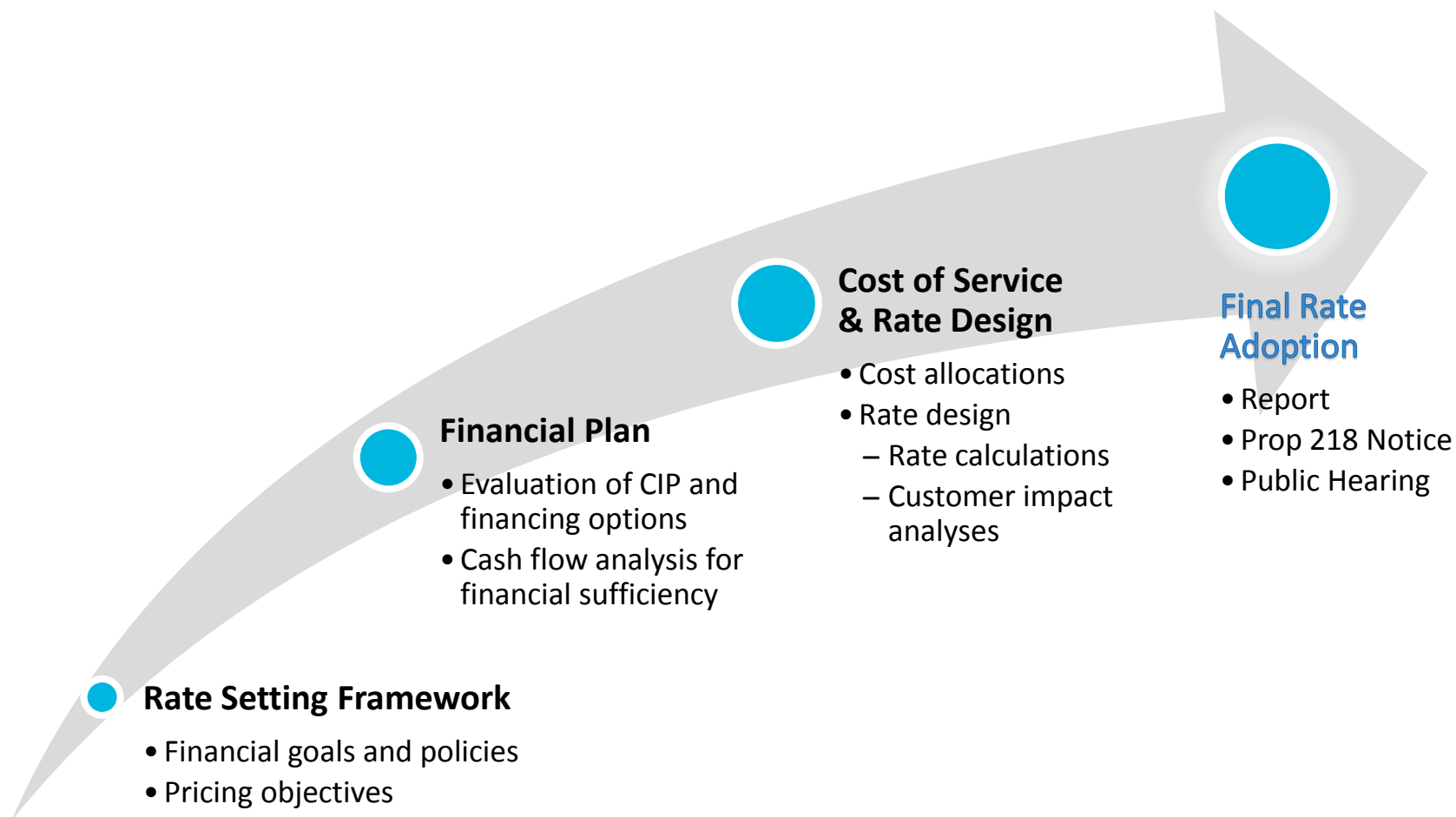
Ad Hoc Water Rate Committee

Meeting #5 – May 1, 2017

TODAY'S AGENDA

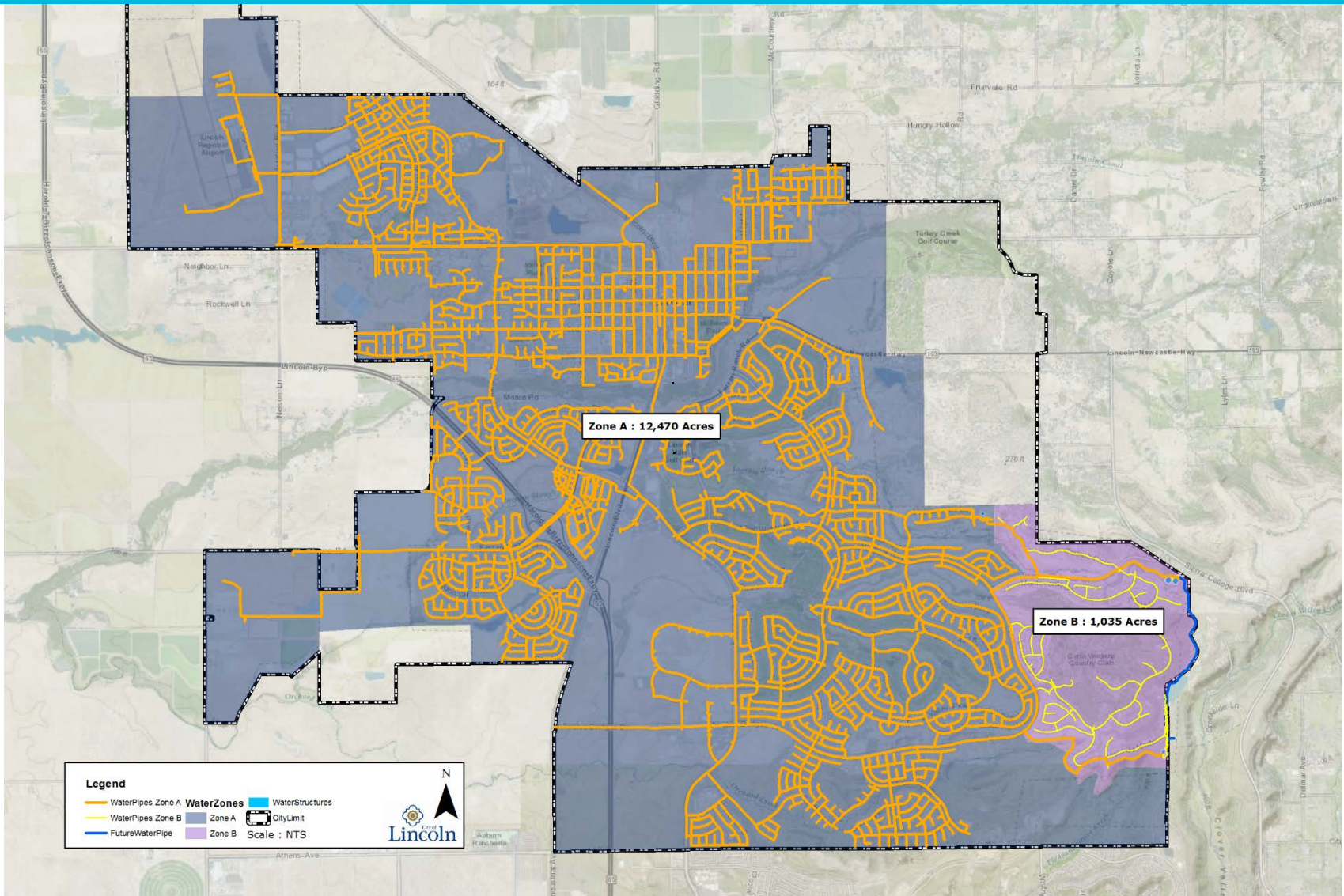
1. Capacity Needs and Infrastructure Challenges
2. Potential Rate Structure Options
3. Potential Peak Day Additional Capacity Charge
4. Cost of Service

STEPS IN CONDUCTING A RATE STUDY

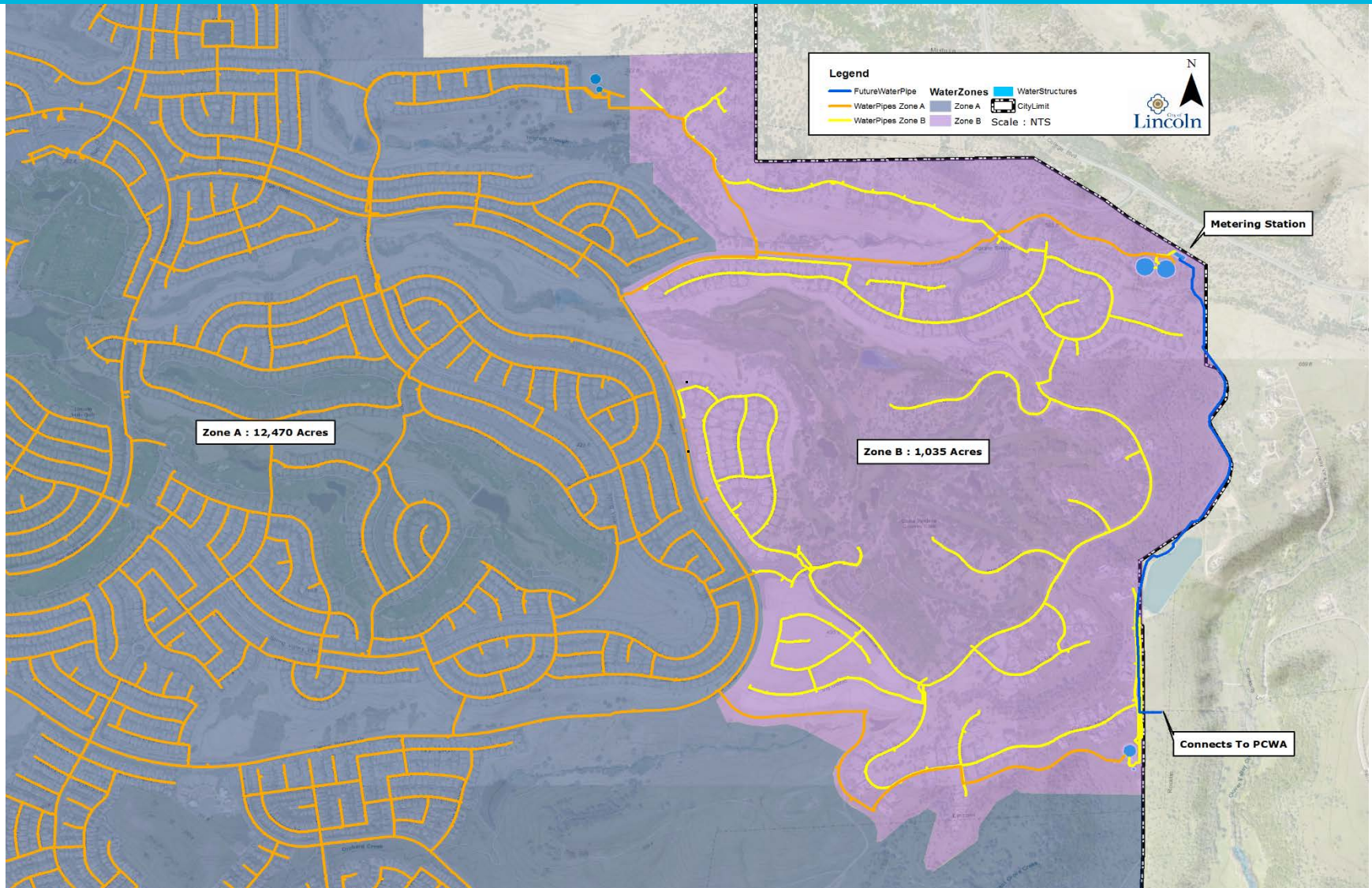


Capacity Needs and Challenges

ZONE INFRASTRUCTURE SLIDE



ZONE B INFRASTRUCTURE SLIDE



CURRENT ZONE B EDUs AND PEAK DEMAND

City of Lincoln

Status of Verdera (Unregulated Zone) Water EDU's

	EDU's
Current PCWA Unregulated Contract	632.15
Building Permits for Unregulated EDU's as of June 30, 2016:	
Residential	706.00
Irrigation & Commercial	68.54
Total Paid EDU's as of June 30, 2016	774.54 *
Building Permits Issued - July 1, 2016 to April 15, 2017:	75.00
Total Paid EDU's as of April 15, 2017	849.54
* July 31, 2016 - Unregulated peak day demand	
	989.57
EDU Consumption in excess of Paid EDU's (989.57 - 774.54)	215.03

CALCULATION OF PRIOR ADDITIONAL CAPACITY COSTS

Line

1	Unregulated/Zone B Peak Day Demand EDUs (7/31/16)	989.57
2	Total EDUs per Paid Building Permits ¹	<u>- 774.54</u>
3	Remaining Zone B PCWA EDUs Required	215.03
4	Additional Unregulated EDUs purchased in 2006	<u>÷ 351.7</u>
5	Percent of 2006 Purchased EDUs Requiring Repayment	61.14%
6	2006 Purchase Amount	<u>× \$4,000,000</u>
7	Unregulated/Zone B Portion to Repay	\$2,445,607
8	Amortization over 30 Years w/ 3.45% APR	\$132,139

¹ Excludes 75 EDUs from building permits paid since July 31, 2016.

Revenue Requirement

	FY 2018			
	Operating	Capital	Additional Capacity	Total
Revenue Requirements				
Water Purchases	\$8,447,895			\$8,447,895
Other Operating Costs	\$3,406,009			\$3,406,009
Additional Capacity Costs			\$132,139	\$132,139
Rate Funded Capital Costs		\$4,031,420		\$4,031,420
Total Revenue Requirements	\$11,853,903	\$4,031,420	\$132,139	\$16,017,463
Less: Revenue Offsets				
Non-Operating Revenue	\$212,826			\$212,826
Total Revenue Offsets	\$212,826	\$0	\$0	\$212,826
Less Adjustments				
Adjustment for Cash Balance	-\$502,619			-\$502,619
Adjustment for Mid-Year Increase	\$0			\$0
Total Adjustments	-\$502,619	\$0	\$0	-\$502,619
Revenue Requirement From Rates	\$12,143,697	\$4,031,420	\$132,139	\$16,307,256

Rate Structures & Bill Impacts

Fixed Charge Derivation

- Fixed Revenue collection is approximately \$9.2M, or 57%
- Remaining revenue (\$6.9M w/o capacity cost recovery) to be charged through volumetric rates

Cost Component	Amount	Reallocated for Fixed/Variable Revenue	Fixed Charge	Volumetric Rate	Basis
Customer Service	\$900,134	\$983,182	X		
Meter Capacity	\$510,323	\$7,705,074	X		Contains Meter service costs and max day and hour costs
Fire	\$520,938	\$569,000	X		
Water Purchase Cost	\$8,620,565	\$5,390,881	37%	63%	In proportion to PCWA Fixed Charges
Base	\$1,397,997	\$1,526,979		X	To meet fixed revenue goals
Max Day	\$1,291,952	\$0	Reallocated to Meter Capacity		35% of Max Day reallocated to the Meter charge
Max Hour	\$2,295,084	\$0	Reallocated to Meter Capacity		35% of Max Hour reallocated to the Meter charge
PCWA Additional Capacity	\$132,139	\$132,139		X	
General	\$638,124	\$0	Reallocated to other Cost Components		In proportion to the other cost components
Total	\$16,307,256	\$16,307,256	\$9,257,256	\$7,049,999	

UNIFORM RATE CALCULATIONS FOR EACH ZONE

Zone A (Regulated) Uniform Rate Component Calculation		
Line #		Total
1	Variable Costs to be Recovered	\$6,917,860
2	Total Use (K gal)	÷ 2,486,121
3	Uniform Rate for Zone A Customers (\$ / K gal)	\$2.79

Zone B (Unregulated) Uniform Rate Component Calculation		
Line #		Total
1	Additional Capacity Cost Recovery	\$132,139
2	Zone B Total Use (k gal)	÷ 134,908
3	Additional Capacity Cost Recovery Rate (\$ / K gal)	\$0.98
4	Uniform Rate for Zone A Customers	+ \$2.79
5	Uniform Rate for Zone B Customers (\$ / K gal)	\$3.77

Alternative Volumetric Rates for Zone B

- Recovering costs of capacity *already* purchased from PCWA included in “Above Capacity” volumetric rate for Zone B

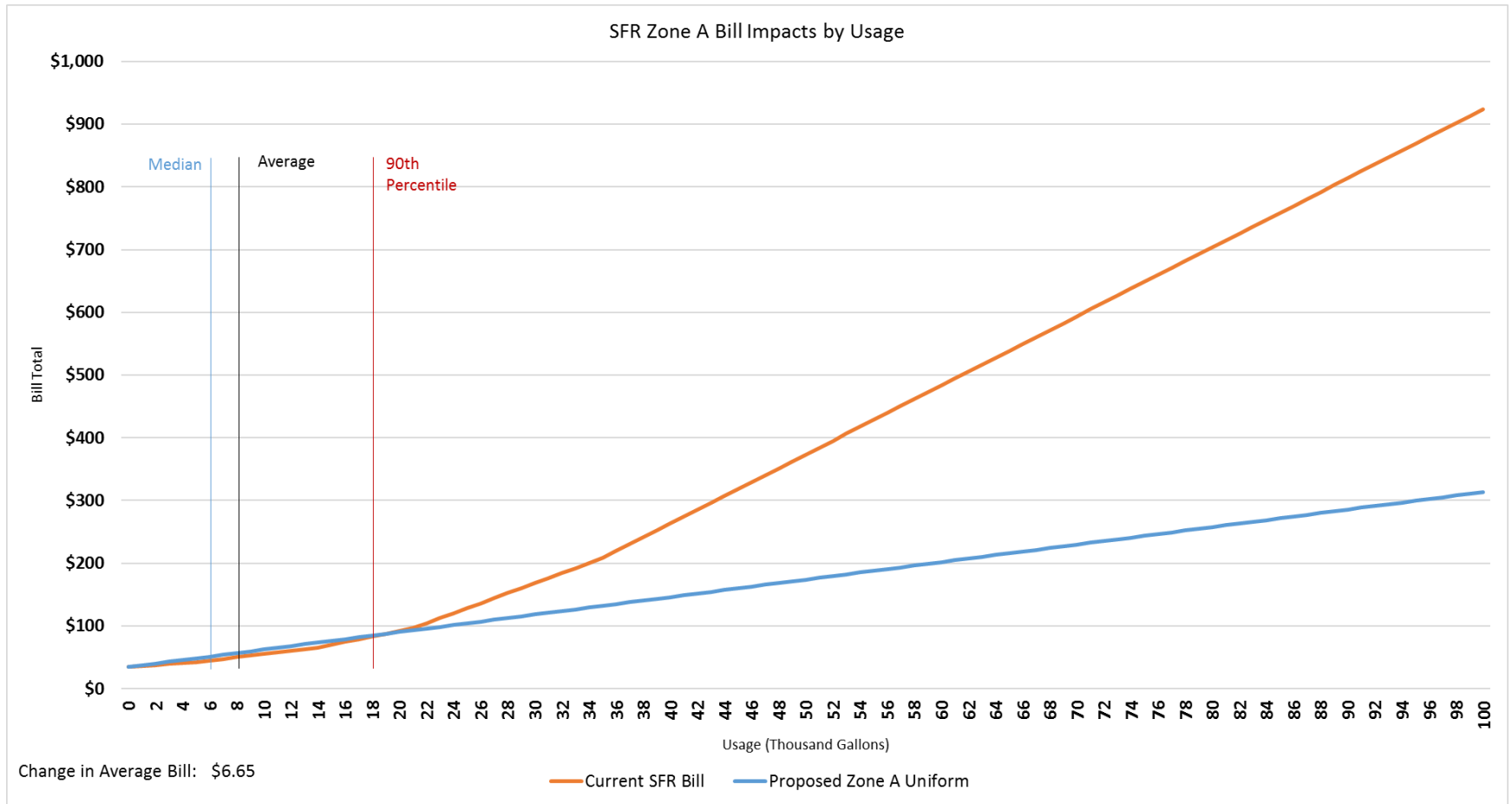
Line #	Class	Capacity	Additional Capacity Cost		Total Rate (c)=(a)+(b)
			Base Rate (a)	Recovery (b)	
1	SFR		\$2.79		\$2.79
2	Zone B (1 x EDUs)				
3	Zone B 1x Capacity	35,000 Gallons	\$2.79		\$2.79
4	Zone B 1x, Above Capacity		\$2.79	\$10.43	\$13.22
5	Zone B (2.5 x EDUs)				
6	Zone B 2.5x Capacity	88,000 Gallons	\$2.79		\$2.79
7	Zone B 2.5x, Above Capacity		\$2.79	\$10.43	\$13.22
8	Zone B (1.5 x EDUS)				
9	Zone B 1.5x Capacity	53,000 Gallons	\$2.79		\$2.79
10	Zone B 1.5x, Above Capacity		\$2.79	\$10.43	\$13.22
11	IND and NR		\$2.79		\$2.79
12	MFR		\$2.79		\$2.79
13	Irrigation		\$2.79		\$2.79
14	Hydrant (Construction)		\$2.79		\$2.79

Citywide Uniform Rate For All Customers

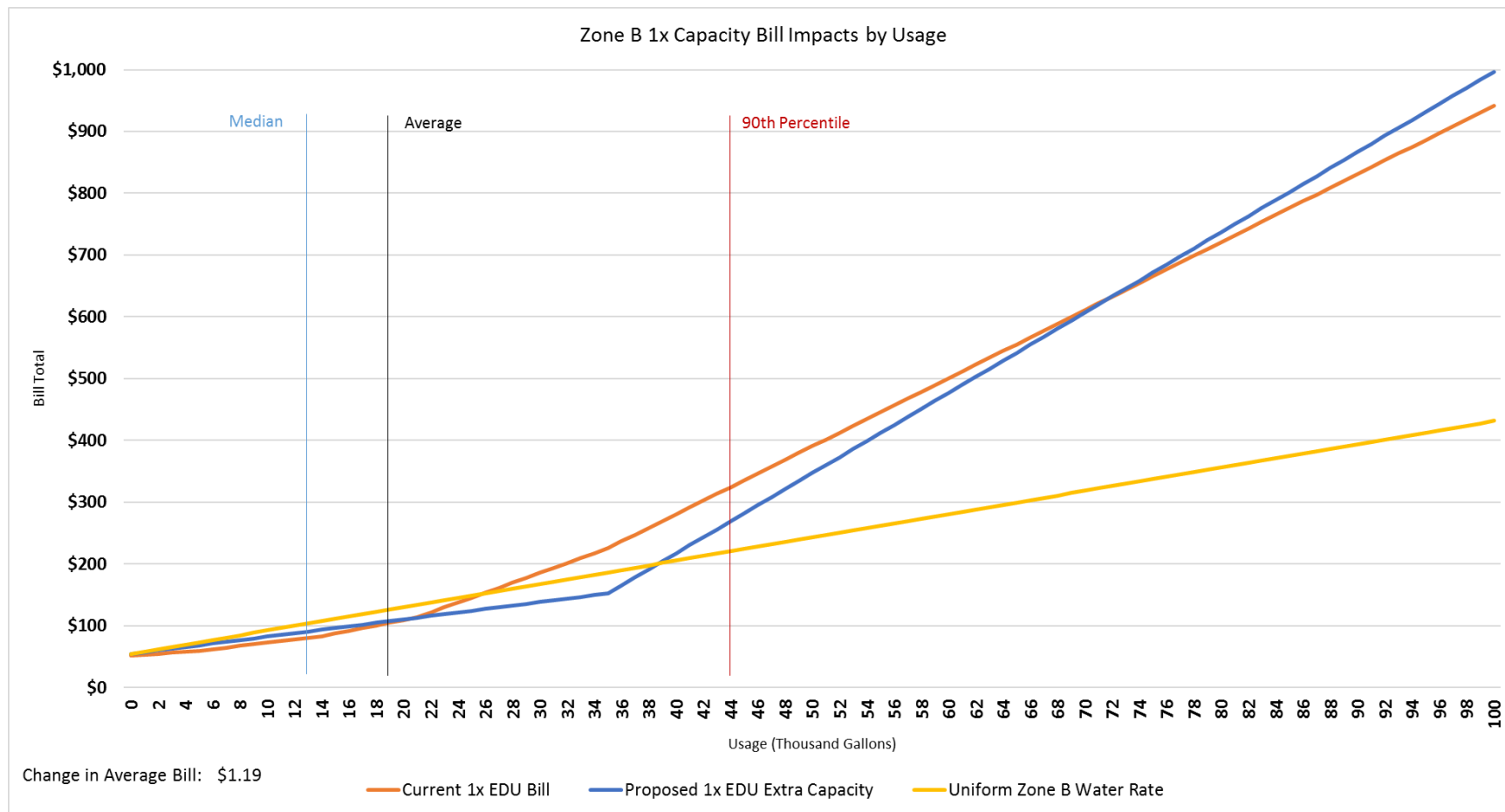
- This scenario assumes no cost recovery for Additional Capacity already purchased in Zone B.

Uniform Rate Component Calculation		
Line #		Total
1	Total Variable Costs to be Recovered	\$6,917,860
2	Total Use (K gal)	<u>÷ 2,486,121</u>
3	Uniform Rate for All Customers (\$/ K gal)	\$2.79

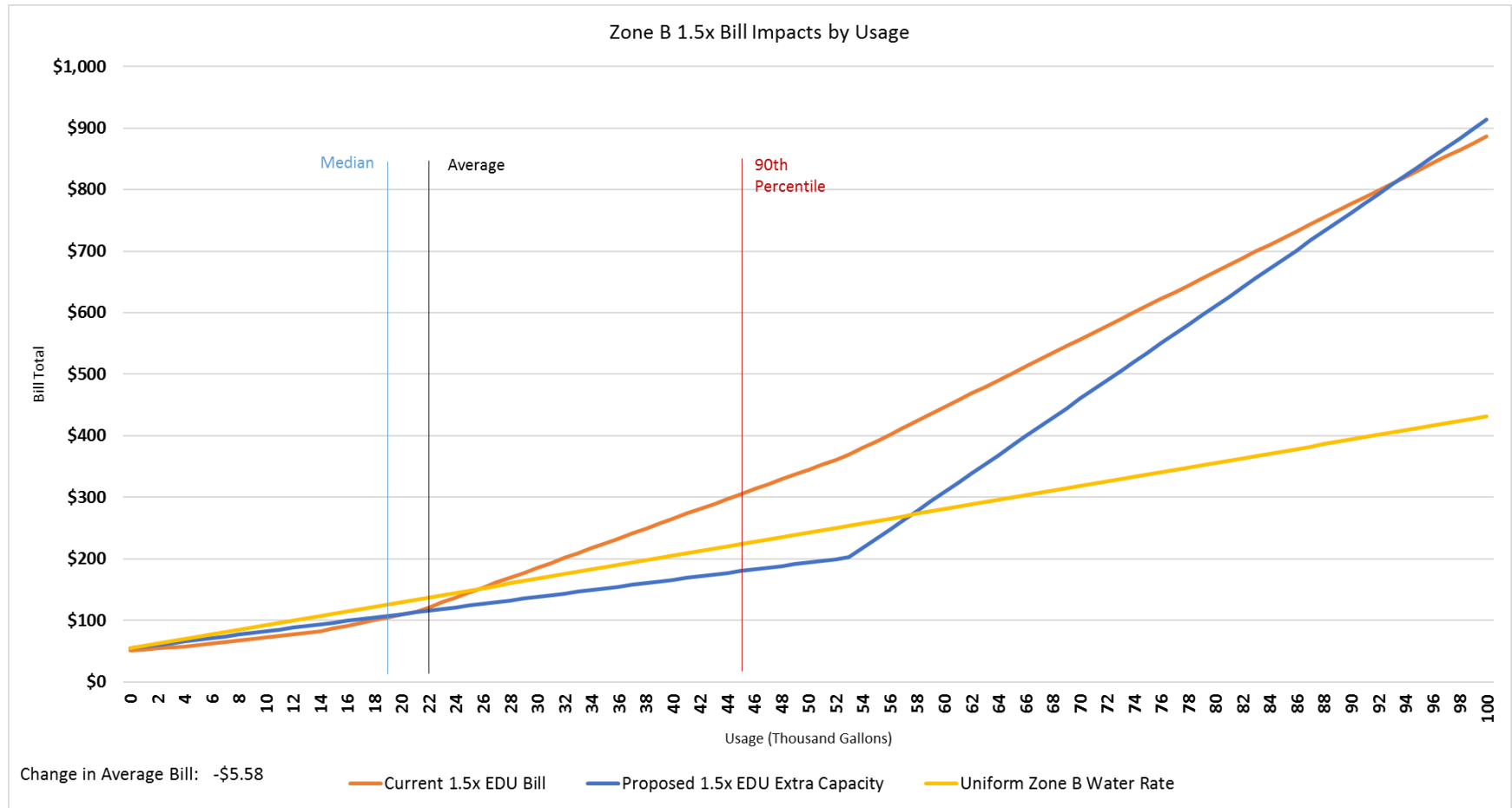
SFR REGULATED BILLS BY USE



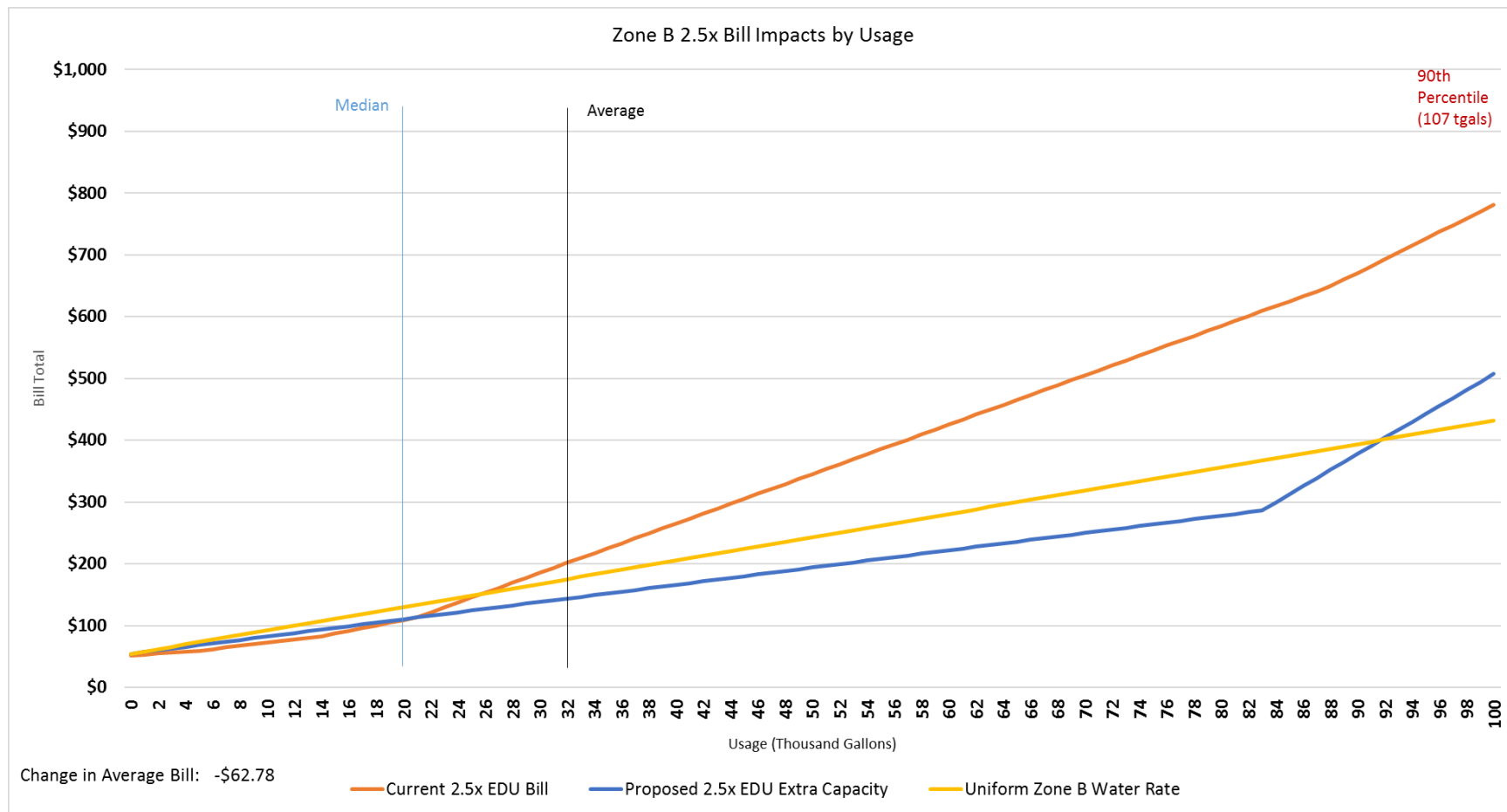
ZONE B 1.0x EDU CUSTOMERS



ZONE B 1.5x EDU CUSTOMERS

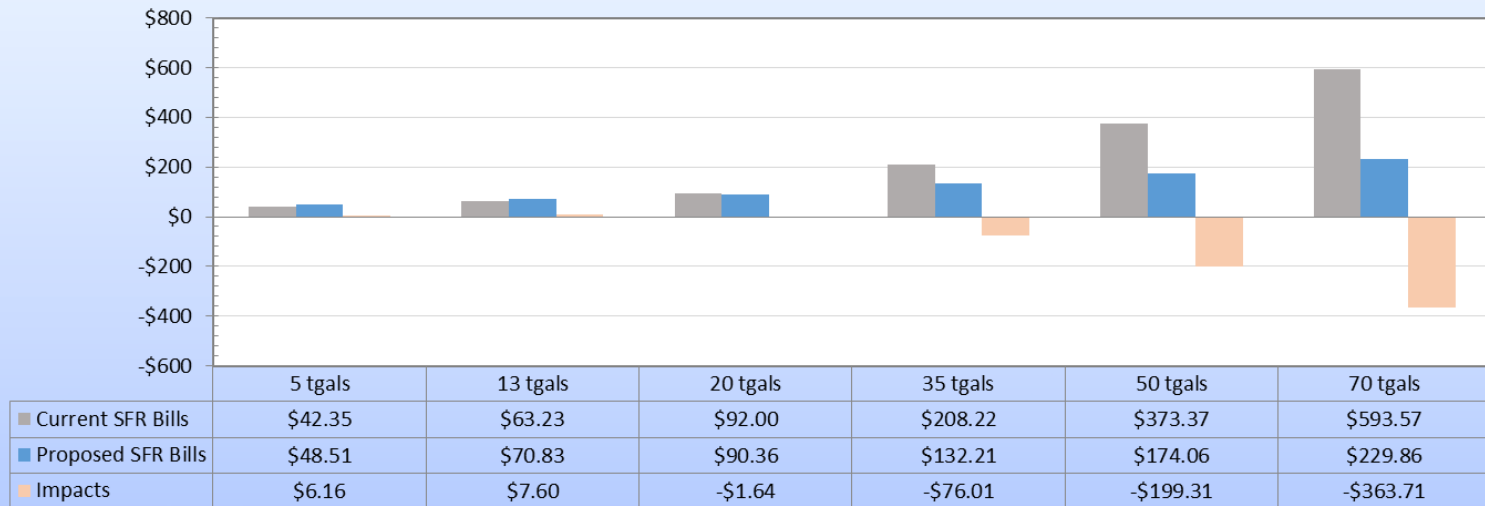


ZONE B 2.5x EDU CUSTOMERS

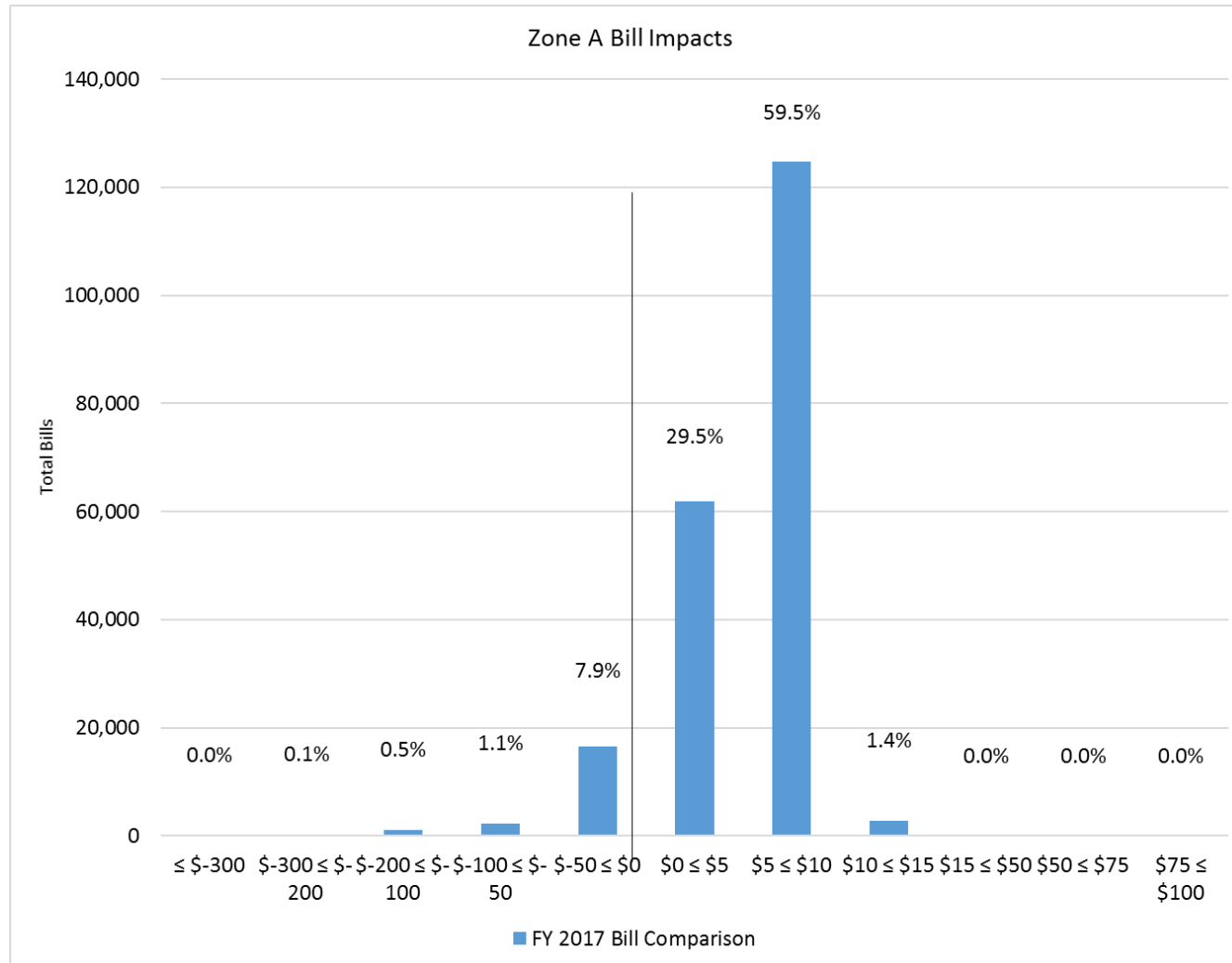


SFR ZONE A (REGULATED) BILL COMPARISON – UNIFORM RATE

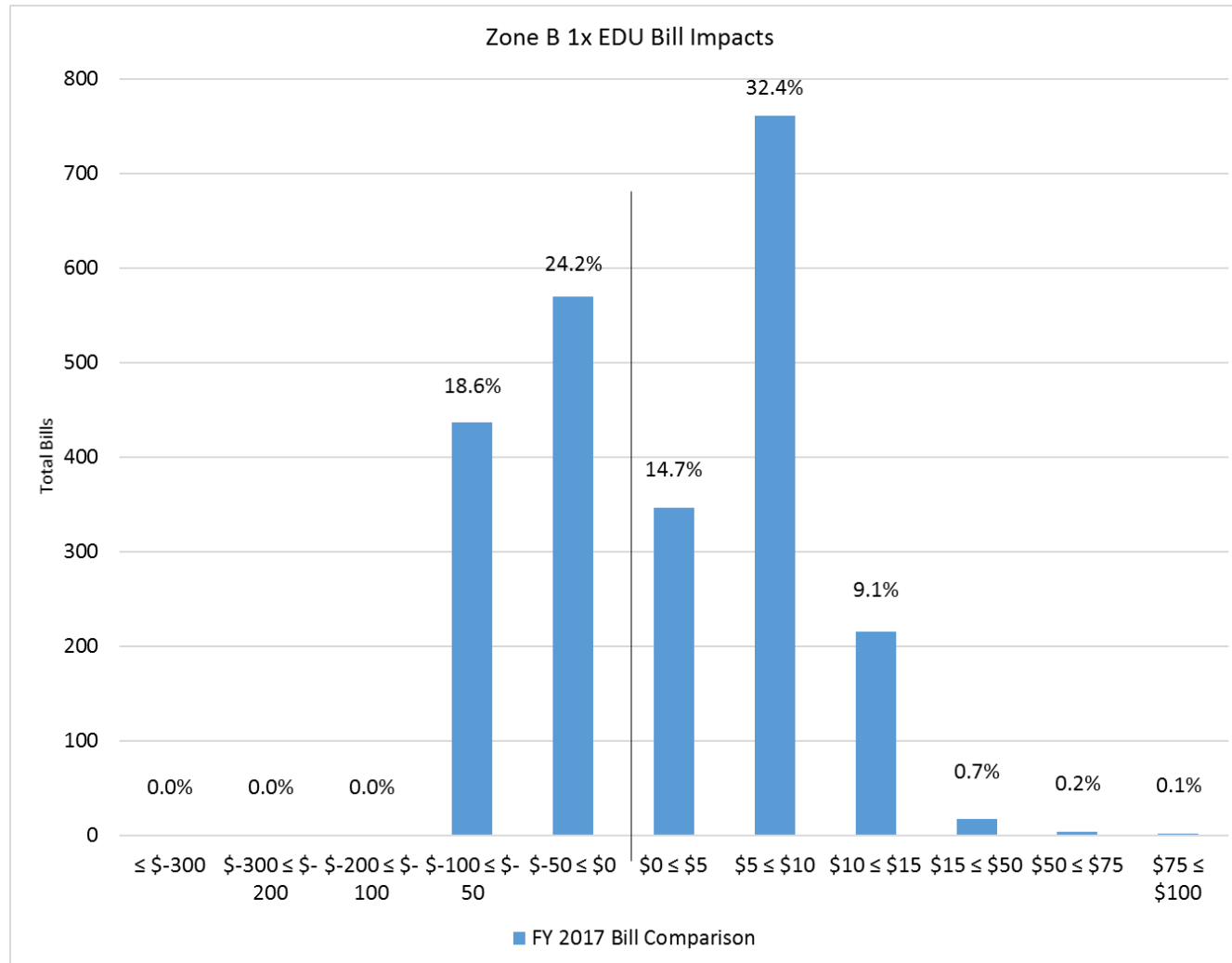
Zone A Total Bill at Different Usage Levels



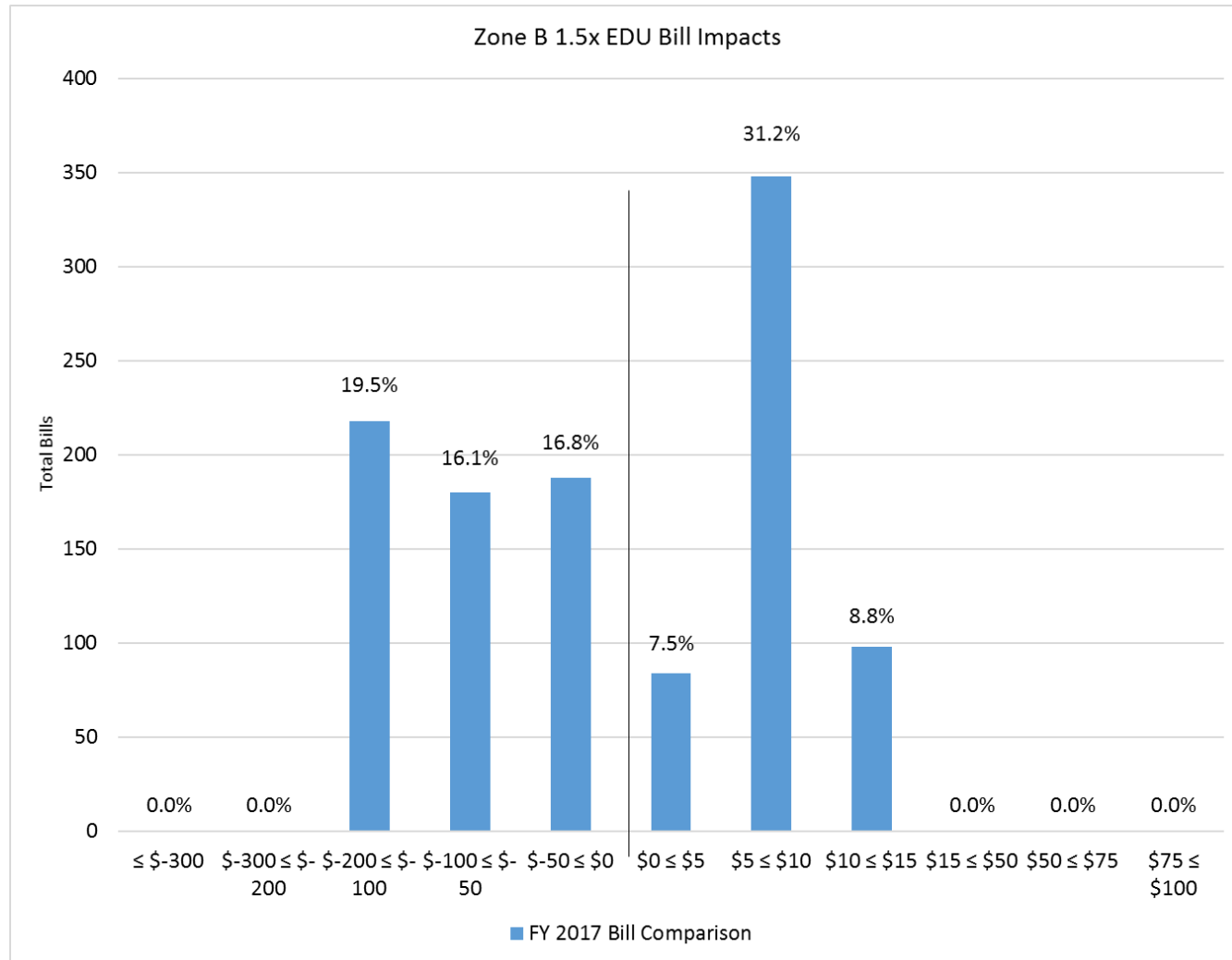
RESIDENTIAL BILL IMPACTS – UNIFORM ZONE A



ZONE B 1x EDU BILL IMPACTS – WITH ADDITIONAL CAPACITY COST RECOVERY



ZONE B 1.5x BILL IMPACTS – WITH ADDITIONAL CAPACITY COST RECOVERY

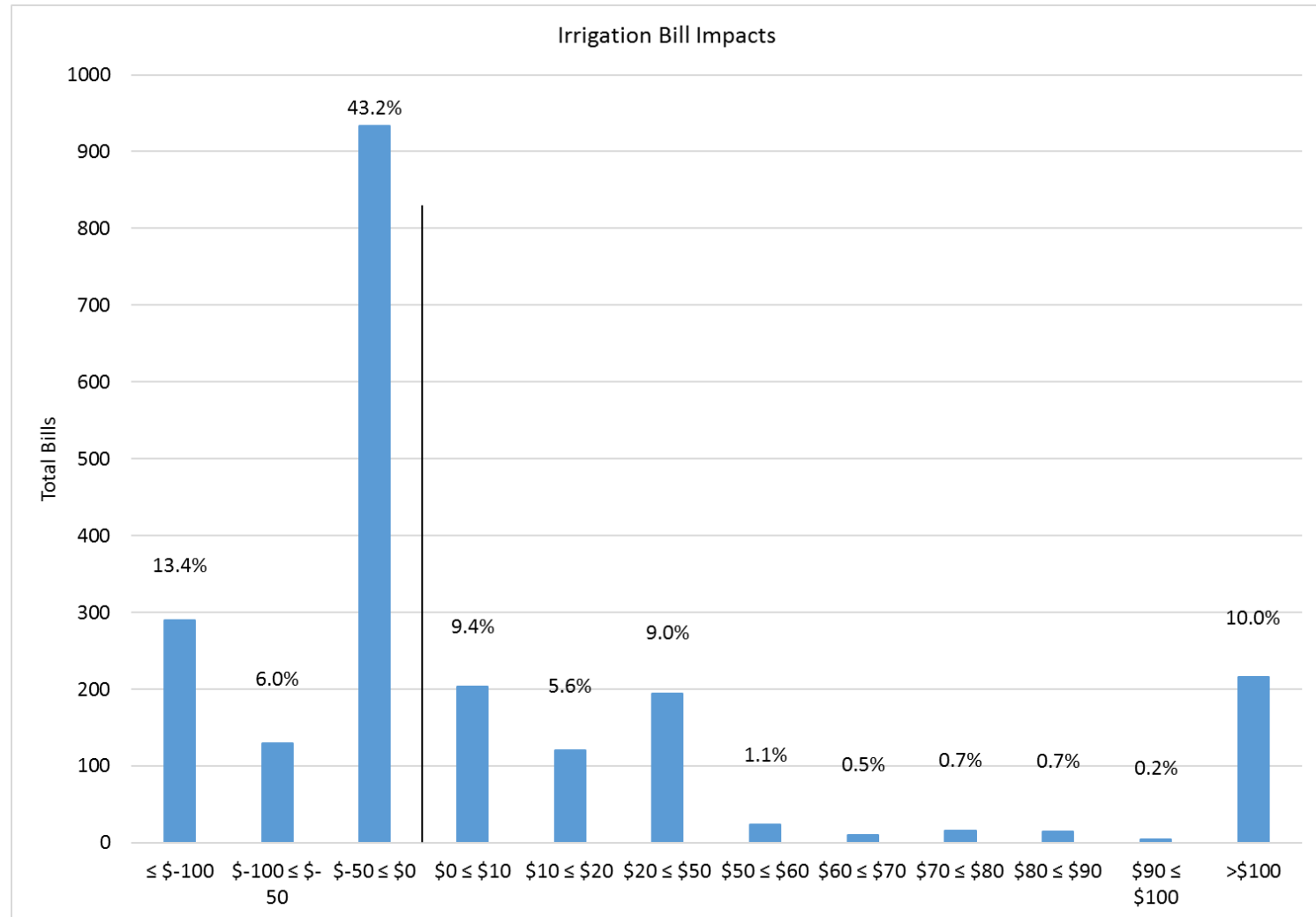


ZONE B 2.5x BILL IMPACTS – WITH ADDITIONAL CAPACITY COST RECOVERY

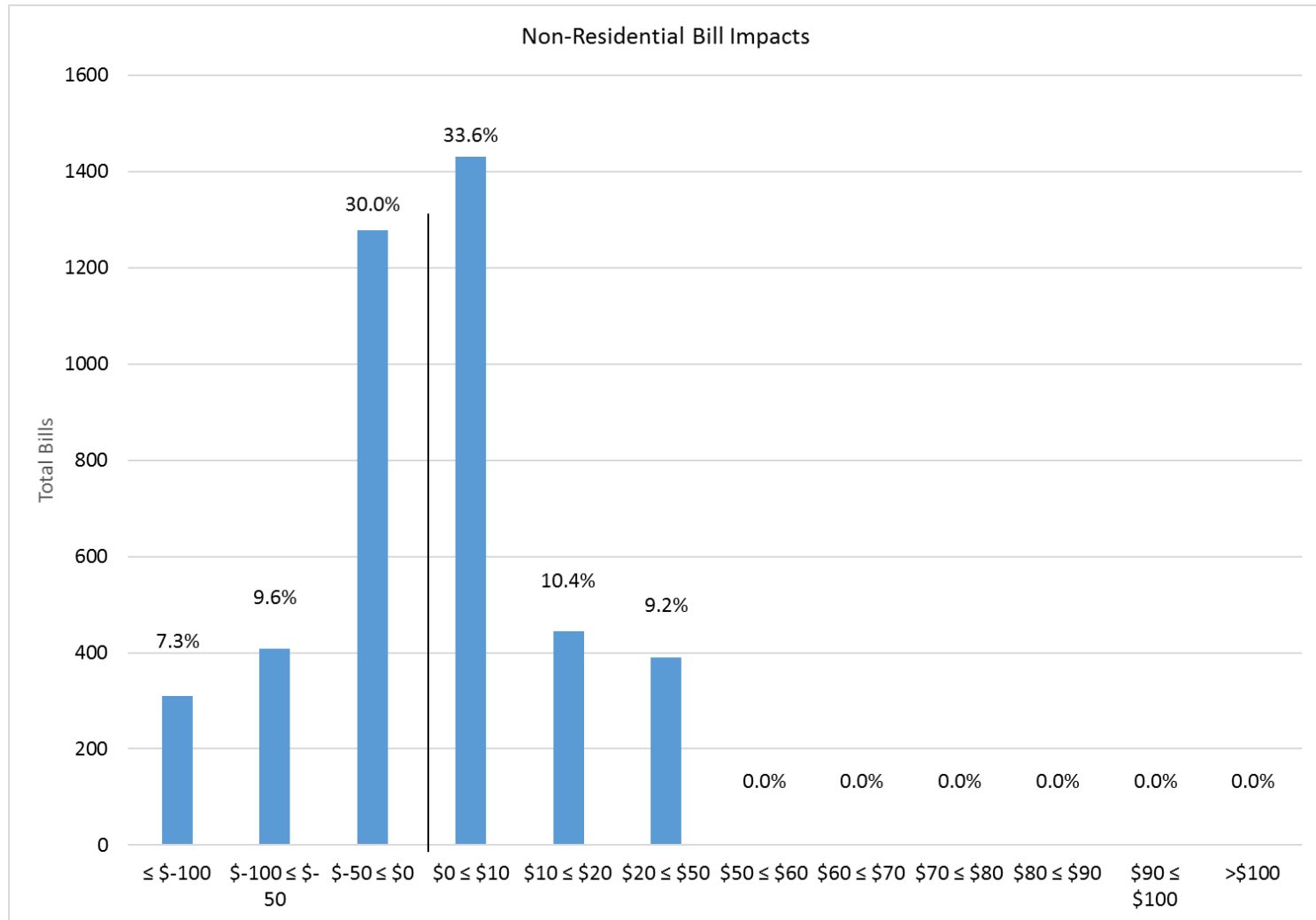




PROPOSED RATE – IRRIGATION IMPACTS

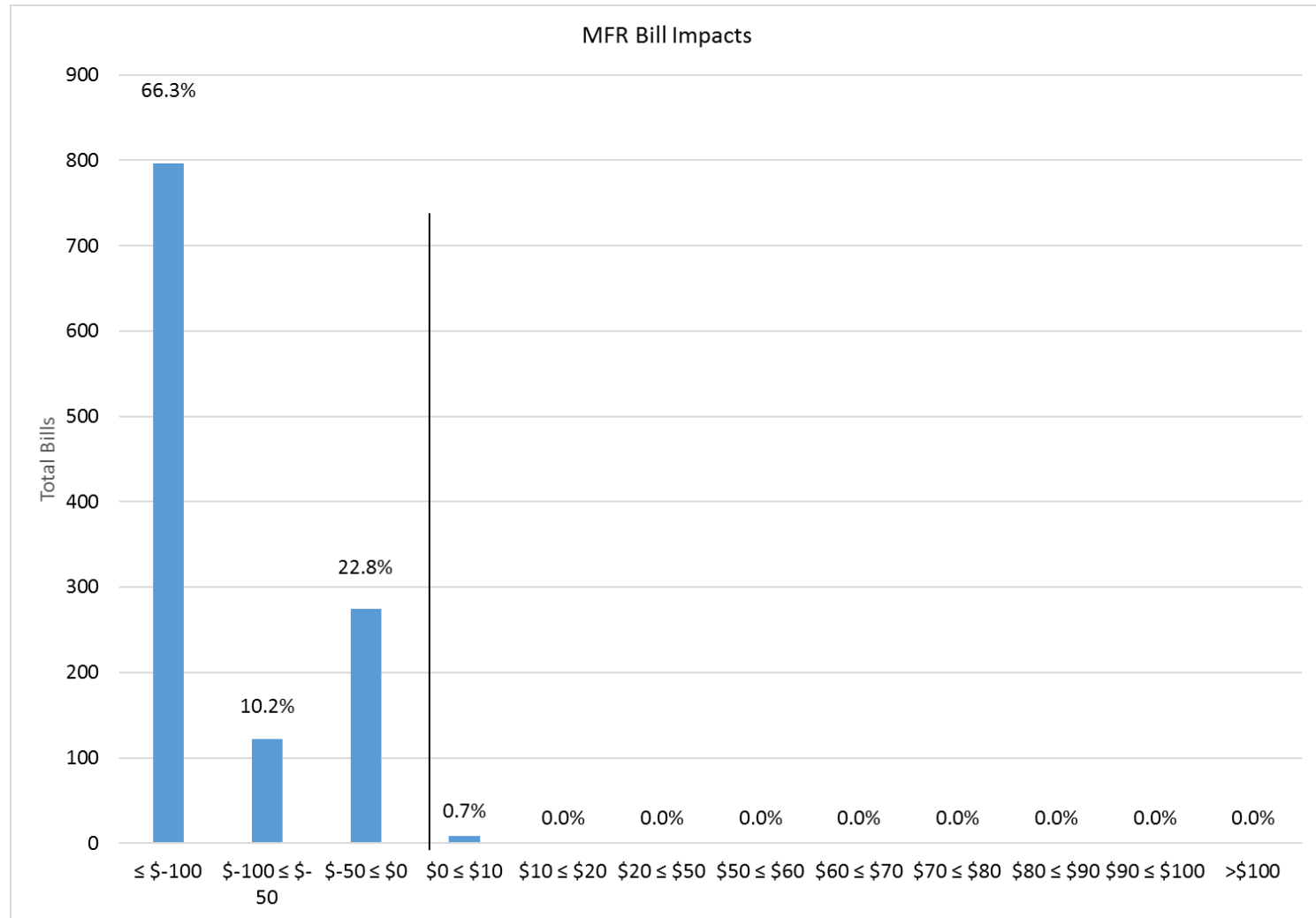


PROPOSED RATE – NON-RESIDENTIAL IMPACTS





PROPOSED RATE – MFR IMPACTS



TOTAL ZONE B MAX DAY CAPACITY PURCHASED

Line #

1	Current PCWA Unregulated (Zone B) Capacity (EDUs)	632.15
2	2006 Purchased EDUs	<u>+ 351.70</u>
	Total Unregulated (Zone B)	
3	Purchased Capacity	983.85

PEAK DAY ADDITIONAL CAPACITY CHARGE

POSSIBLE METHODOLOGY

The City will need to purchase even more capacity in Zone B when Zone B users exceed 983.85 EDU on any given day (max day) after new pipeline comes on-line.

- Identify those accounts that cause Zone B use to exceed purchased EDUs
- Apply a Max Day Factor derived from the City of Lincoln Draft Water Master Plan (or a max day factor derived from Zone B water use)
- Charge accounts exceeding estimated max day capacity for number of gallons exceeding EDU allotment ($\text{EDUs} \times 1,150 \text{ GPD}$)
- More detailed account data could be available if AMI is implemented in Zone B (at a minimum cost of approximately \$300,000) to replace Max Day Factor estimates

DERIVATION OF PROPOSED ADDITIONAL CAPACITY CHARGE

Line

1	System-Wide Max Day Factor	2.00
2	Zone B Max Month Factor	<u>÷ 1.72</u>
3	Ratio of Max Day to Max Month	1.16

Line

1	PCWA Capacity Charge per EDU	\$18,337
2	GPD Per EDU	<u>÷ 1,150</u>
3	\$ Per Gallon (of Max Day Capacity)	\$15.95

EXAMPLE PEAK DAY CAPACITY CHARGE CALCULATION

Line #	Sample Calculation
1	Max Month Use 35,000
2	Days (July) $\div 31$
3	Average Gallons per Day 1,129
4	Ratio of Max Day to Max Month $\times 1.16$
5	Projected Gallons on Max Day 1,313
6	Max Day Capacity (GPD) Per EDU $- 1,150$
7	Max Day Gallons Above Capacity 163
8	\$ Per Gallon (Max Day Capacity) $\times \$15.95$
9	Charge For Exceeding Capacity \$2,592.75

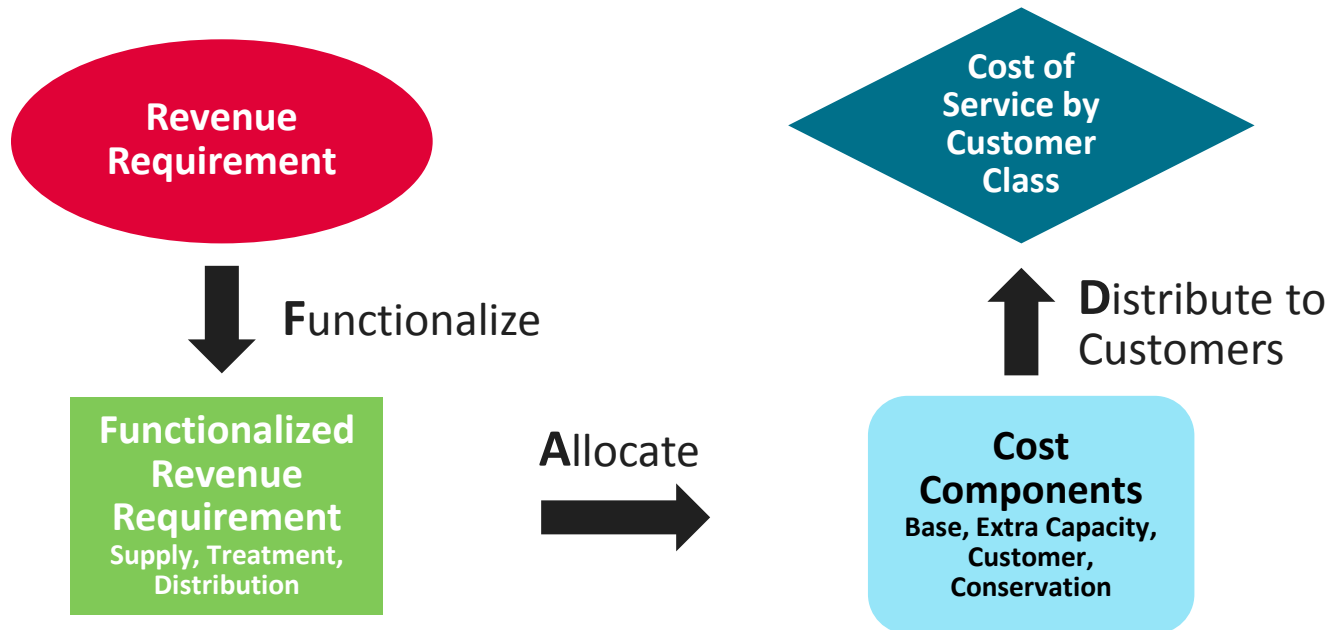
AMORTIZED CAPACITY COST PER GALLON APPROACH

- Alternative approach for distributing costs for accounts that exceed EDU capacity
- Cost of excess capacity is amortized (without interest) over five years
- Capacity cost would be repaid in monthly installments over 5 years when capacity is exceeded

Line #		
1	Cost per EDU	\$18,337.00
2	K Gal Capacity per EDU (Monthly)	÷ 35
3	Cost per K gal of Capacity	\$523.91
4	Months in 5 Year Repayment Period	÷ 60
5	Cost per Month per K gal of Capacity	\$8.73

Cost of Service Analysis

COST OF SERVICE



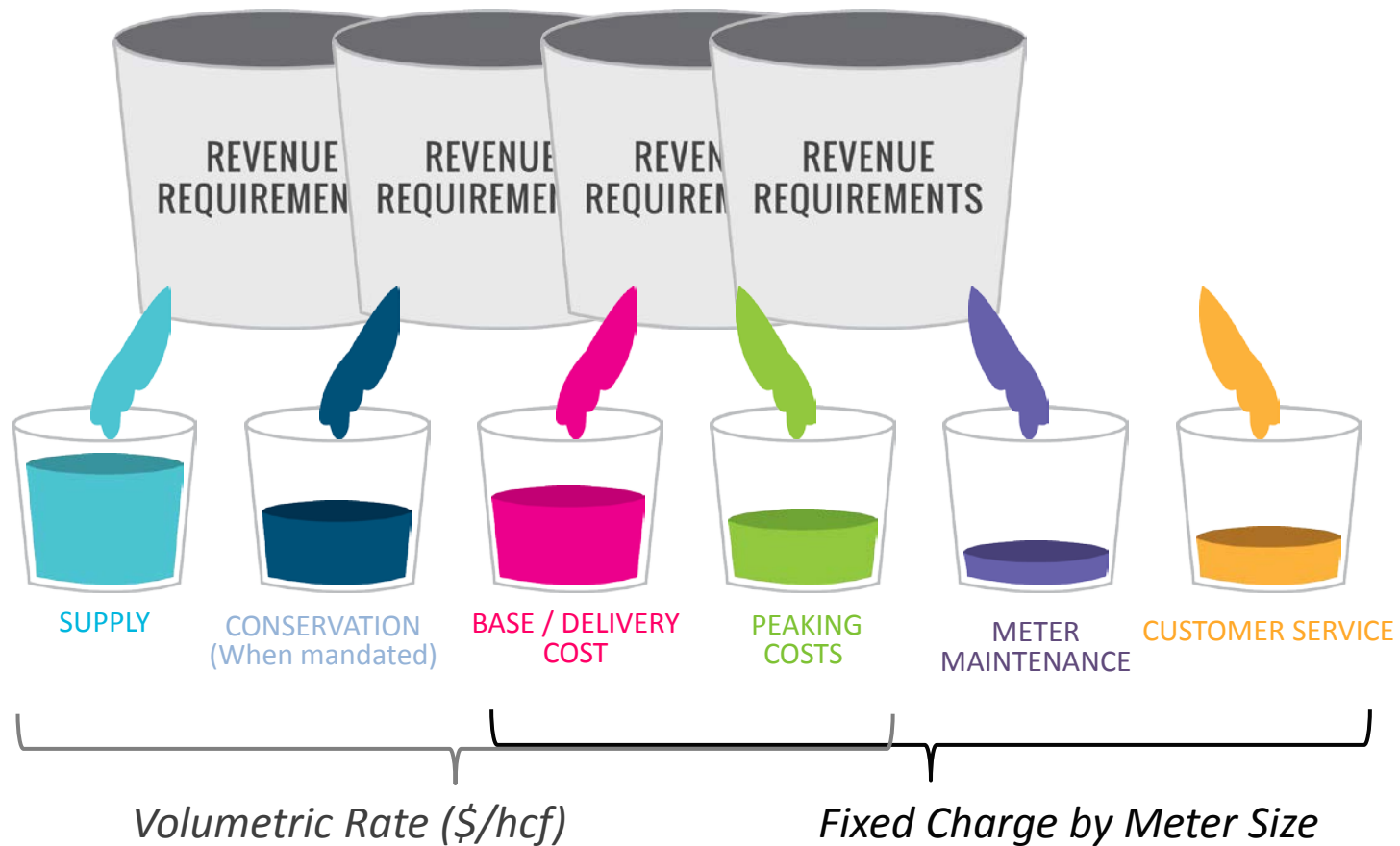
- » Calculates who (customer class) pays how much
- » Recovers costs from customer classes in proportion to the demands they place on the system, recognizing each classes' impact on the costs to run system facilities
- » Cost of Service is the fundamental methodology used to establish utility rates in the United States

WHAT IS COST OF SERVICE?

Rationale:

- Each customer class causes costs differently because their patterns of use or characteristics are different
- Cost of service allows the matching of rates charged to each group with the costs of serving them
- Each group will “pay its own way”; no subsidies

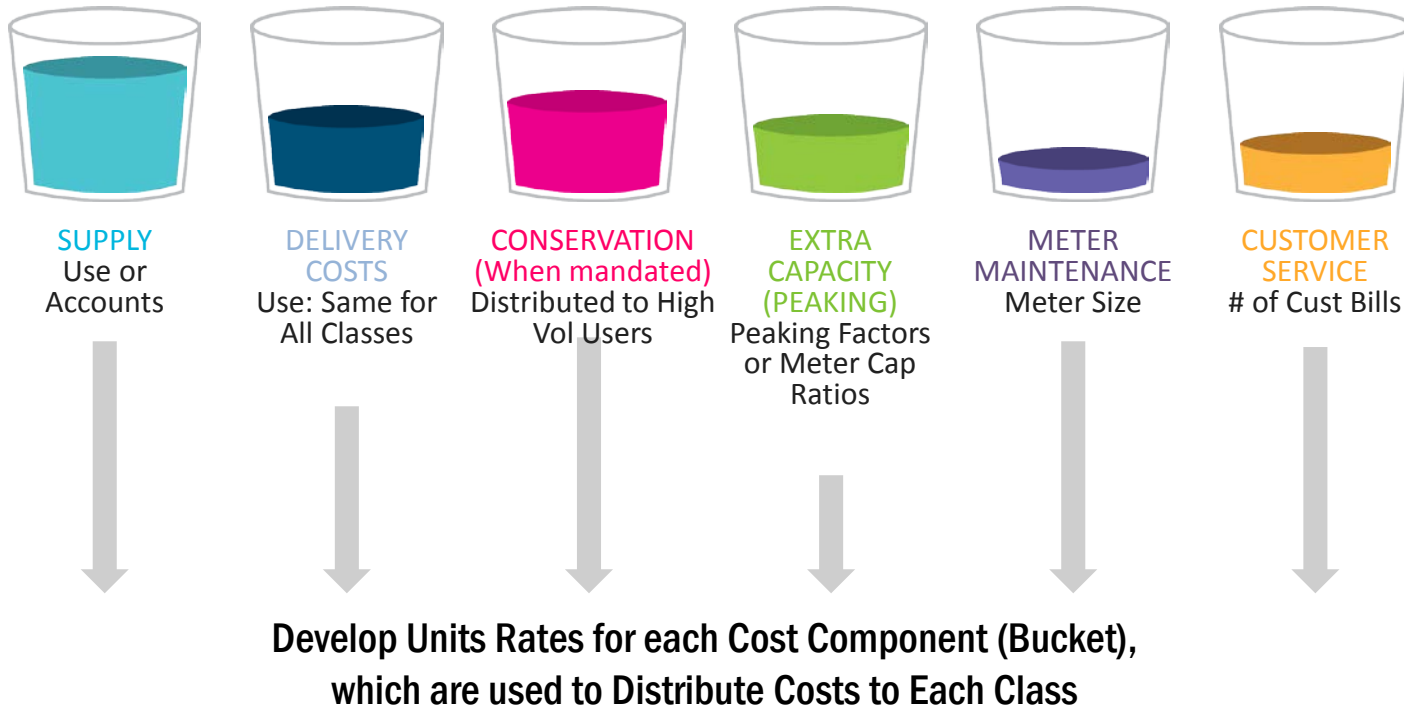
WATER COST OF SERVICE - ALLOCATION TO COST COMPONENTS



BASE-EXTRA CAPACITY METHOD

- **Water Supply:** Variable costs that vary with total quantity of water used
- **Base:** O&M expenses and capital costs associated with service to customers under average load conditions (base use)
- **Peaking (or Extra Capacity) Costs:** costs associated with meeting peak demand in excess of base (average daily demand) use
 - Max day extra demand
 - Max hour extra demand
- **Meter Maintenance:** maintenance and capital costs related to meters
- **Customer Service:** costs associated with serving customers, irrespective of the amount or rate of use
 - Meter reading, billing, customer accounting, customer service, collecting expense
- **Fire:** costs that apply solely to the fire protection function
 - Public hydrants
 - Related branch mains and valves

DISTRIBUTE COST COMPONENTS TO CUSTOMER CLASSES



CUSTOMER CLASSES (Cost to Serve Each Class)
(Single Family, Multi-family, Commercial etc.)

REVENUE ADJUSTMENTS - MEDIUM CIP

